

XXV DAE-BRNS High Energy Physics Symposium 2022



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Search for the decay $B \rightarrow D^* \eta \pi$ in Belle (II).

Tuesday 13 December 2022 14:00 (1 hour)

Recent measurements of B to charm semileptonic decays show a difference between the branching ratio of the sum of exclusive decay rates and the inclusive $b \rightarrow c$ decay rate (the so-called Semi-Leptonic (SL) gap) which affects the interpretation of the CKM element $|V_{cb}|$. Large contributions from not-yet measured $B \rightarrow D(*)$ decays could be the explanation of such difference. We present a sensitivity study of the $B \rightarrow D^*$ decay using the data sample collected by the Belle II experiment. This measurement will provide valuable information to predict its semileptonic counterpart $B \rightarrow D^*$. If $B \rightarrow D^*$ decay is found to be large, it could contribute significantly to the hadronic B-tagging, and consequently enhance the sensitivity for searching rare B decays with missing energy.

Session

Quark and Lepton Flavour Physics

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